

CLAIMS

1 Filler-containing foams obtainable by reacting

5 (I) polyfunctional isocyanates and
5 (II) mixtures of
a) carboxylic acids and/or hydroxycarboxylic acids and optionally
b) alcohols and/or primary and/or secondary amines,
at least a) or b) having to be polyfunctional and/or a) and/or b) being
combined to form a hydroxycarboxylic acid or aminocarboxylic acid
10 and
c) filler mixtures, the filler mixtures containing
c-1) inorganic, high temperature resistant fillers,
c-2) micropore-forming, high temperature resistant fillers,
c-3) heat-activatable swelling agents.

15 2. Foams as claimed in claim 1, characterized in that component (I)
and/or (II) contain(s) catalysts and/or foam stabilizers and/or liquid flame
retardants and/or silicon dioxides as further constituents.

20 3. Foams as claimed in claims 1 and 2, characterized in that compo-
nent (II) contains water as a further constituent.

25 4. Foams as claimed in claims 1 to 3, characterized in that the filler
mixture (c) contains adhesives and/or grinding aids and/or anticaking
agents as further constituents.

5. Foams as claimed in claims 1 to 4, characterized in that the poly-
25 functional isocyanates (I) are selected from the group consisting of
aliphatic, cycloaliphatic and aromatic polyfunctional isocyanates and
oligomerized NCO-containing products produced therefrom.

6. Foams as claimed in claims 1 to 5, characterized in that poly-
hydroxypolycarboxylic acids are used as the carboxylic acids.

30 7. Foams as claimed in claims 1 to 6, characterized in that polyester

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~~polyols and/or polyether polyols are used as the alcohols.~~

8. Foams as claimed in claims 1 to 7, characterized in that the inorganic, high temperature resistant fillers (c-1) are selected from the group consisting of calcium carbonate, calcium sulfate, clay, aluminium oxide, magnesium oxide and aluminium silicates.

5 9. Foams as claimed in claims 1 to 8, characterized in that the inorganic, high temperature resistant fillers (c-1) have a mean particle size of 1 to 20 µm.

10. Foams as claimed in claims 1 to 9, characterized in that the micropore-forming, high temperature resistant fillers (c-2) are selected from the group consisting of expanded perlite, expanded vermiculite, expanded clay, expanded graphite, hollow aluminium silicate beads, hollow glass beads, hollow fly-ash beads, cellular concrete and expanded waterglass.

11. Foams as claimed in claims 1 to 10, characterized in that the filler is 15 a mixture of solids consisting of

20 to 90% by weight of inorganic, high temperature resistant
filters (c-1),
1 to 30% by weight of heat-activatable swelling agents (c-3),
0.1 to 35% by weight of adhesives,
20 2 to 40% by weight of micropore-forming, high temperature
resistant fillers (c-2) and
0.01 to 10% by weight of grinding aids and/or anticaking agents,
with the proviso that the quantities shown add up to 100% by weight.

12. A process for the production of filler-containing foams, characterized 25 in that, starting from

- (I) polyfunctional isocyanates and
- (II) mixtures of
 - a) carboxylic acids and optionally
 - b) alcohols and/or primary and/or secondary amines,

at least a) or b) having to be polyfunctional and/or a) and/or b) being combined to form a hydroxycarboxylic acid or aminocarboxylic acid and

c) filler mixtures, the filler mixtures containing

5 c-1) inorganic, high temperature resistant fillers,
c-2) micropore-forming, high temperature resistant fillers,
c-3) heat-activatable swelling agents,

10 components (I) and (II) are placed in separate compartments and are foamed by mixing.

13. A process as claimed in claim 12, characterized in that components (I) and (II) are placed in a cartridge system.

14. A process as claimed in claims 11 to 13, characterized in that components (I) and (II) are used in a ratio by volume of 1:2 to 2:1.

15 15. A process as claimed in claims 11 to 14, characterized in that components (I) and (II) are used in a ratio by volume of 1:1.

16. A process as claimed in claims 11 to 15, characterized in that it is carried out at a temperature of 0 to 40°C.

20 17. The use of the foams claimed in claims 1 to 16 as flame-retardant foams.

18. The use of the foams claimed in claims 1 to 16 as insulating foams.

DEPARTMENT OF TRADE AND INDUSTRY

